

IN THE CLAIMS:

1. (Currently Amended) A washing appliance, which in use is connected to a water supply, said appliance including a wash chamber, a water softener, a flow directing arrangement valve ~~connected to said water supply~~ and a programmed controller, said water softener comprising:

a resin container ~~which contains~~ configured to receive a resin suitable for softening water, said resin container in use receiving ~~which receives~~ water from said water supply and ~~supplies~~ supplying water to said wash chamber;

a brine container having ~~an~~ a salt inlet for the supply of salt, ~~an~~ a water inlet for the supply of water and an outlet;

a pump controlled by said programmed controller, said pump in use receiving ~~which receives~~ brine from ~~said outlet of said brine container~~ outlet and ~~pumps~~ pumping brine through said resin container to ~~thereby regenerate said resins, the volume of brine being controlled by said controller controlling a duty cycle of said pump,~~ the regeneration of said resins being controlled by said controller ~~in accordance, with a duty cycle selected in accordance with the supply water hardness,~~ the controller controlling a duty cycle of said pump to control the introduction of brine into said resin container;

said flow directing arrangement valve ~~having a first flow directing valve outlet feeding said resin container and a second flow directing valve outlet feeding said wash chamber,~~

said flow directing arrangement in use valve being controlled by said controller to provide a flow to one or both of said outlets so as to provide a blend of supply water and softened water to said wash chamber,

said controller controlling said flow directing arrangement so as to determine the ratio of the water components of said blend to achieve a desired softness of water in said wash chamber.

2-3. (Cancelled)

4. (Currently Amended) A washing appliance as claimed in ~~either of claim 1 or claim 3~~ wherein said flow directing arrangement ~~valve~~ is a two-way solenoid.

5. (Previously Presented) A washing appliance as claimed in claim 1 including a detergent dispenser wherein water supplied to said wash chamber by said water softener passes through said detergent dispenser.

6. (Previously Presented) A washing appliance as claimed in claim 1 wherein said water softener is mounted in a hollow wall of said washing appliance.

7. (Previously Presented) A washing appliance as claimed in claim 1 wherein said brine container additionally has an overflow weir for the maintenance of a maximum water level in said brine container.

8. (Previously Presented) A washing appliance as claimed in claim 7 wherein spillage from said overflow weir is coupled directly to an appliance drain.

9. (Previously Presented) A washing appliance as claimed in claim 7 wherein said overflow weir spillage is coupled directly to an appliance sump.
10. (Previously Presented) A washing appliance as claimed in claim 1 wherein said water level in said brine container is controlled by a float valve.
11. (Withdrawn) A washing appliance as claimed in claim 1 wherein said water softener has a user indicator to indicate the absence of salt in brine container.
12. (Withdrawn) A washing appliance as claimed in claim 11 wherein said water softener has a user indicator to indicate the absence of salt, wherein said indicator comprises a light and a light pipe.
13. (Withdrawn) A washing appliance as claimed in claim 12 wherein said light pipe extends between said brine container and a point of visibility said light is located in the bottom of said brine container in alignment with the bottom of said light pipe, wherein rays from said light pass through said light pipe when solid salt is absent from the space between the light and the end of the light pipe.
14. (Withdrawn) A washing appliance as claimed in claim 11 wherein said indicator comprises an indicator light energised when the absence of solid salt has been detected using a light and light sensor located in said brine container.

15. (Withdrawn) A washing appliance as claimed in claim 14 wherein energising of said indicator light is controlled by said programmed controller.

16. (Withdrawn) A washing appliance as claimed in claim 11 wherein a light source and a light sensor are located in a spaced apart relationship at the bottom of said brine container, to define an optical path there between, a controller receiving as an input the output signal of said light sensor and said indicator light being energised by said controller upon receiving a signal from said light sensor when the optical path between said light source and said light sensor is substantially transmissive.

17. (Withdrawn) A washing appliance as claimed claim 15 wherein said controller can delay energising said indicator light for a delay period after absence of solid salt is detected.

18. (Previously Presented) A washing appliance as claimed in claim 1 wherein said appliance in use is accommodated within a cavity in kitchen joinery or a free-standing cabinet, and additionally comprises:

a wash system slidably mounted within said washing appliance in a manner that it may be withdrawn horizontally for access thereto, said wash system including:

an open topped wash chamber adapted to accommodate items to be washed and within which water is circulated; and

a wash chamber closure that covers the open top of said open top chamber on retraction of wash chamber into washing appliance.

19. (Previously Presented) A washing appliance as claimed in claim 1 said washing appliance is a dishwasher.

20. (Currently Amended) A water softener comprising:

a resin container configured to receive ~~which contains a resin suitable for softening water~~
~~which receives~~ water from a water supply;

a brine container having ~~an~~ a salt inlet for the supply of salt, ~~an~~ a water inlet for the supply of water and an outlet;

a pump controlled by a programmed controller, the pump in use receiving ~~which receives~~ brine from ~~said outlet of said~~ brine container outlet and ~~pumps~~ pumping brine through said resin container to ~~thereby~~ regenerate said water softening resins, ~~the volume of brine being controlled~~
~~by said controller controlling a duty cycle of said pump,~~ the regeneration of said the water
softening resins being controlled by said controller ~~in accordance with a duty cycle selected in~~
accordance with the supply water hardness, the controller controlling the duty cycle of said pump
to control the introduction of brine into said resin container;

an outlet for the supply of softened water, and

a flow directing ~~valve connected~~ arrangement configured to connect to said the water supply and having one outlet feeding said resin container and a second outlet feeding said outlet for the supply of softened water, said flow directing ~~valve~~ arrangement being controlled in use by

said controller to provide a flow to one or both of said outlets so as to provide a blend of supply water and softened water;

said controller controlling said flow directing arrangement so as to determine the ratio of the water components of said blend to achieve a desired softness of water.

21-22. (Cancelled)

23. (Currently Amended) A water softener as claimed in claim 20 wherein said flow directing ~~valve~~ arrangement is a two-way solenoid.

24. (Currently Amended) A water softener as claimed in ~~any one of claims~~ claim 20, ~~22 and~~ or claim 23 wherein said brine container additionally has an overflow weir for the maintenance of a maximum water level in said brine container.

25. (Previously Presented) A water softener as claimed in claim 20 wherein said supply of water to said brine container is controlled by a float valve, said float valve being affected by the level of brine in said brine container.

26. (Withdrawn) A water softener as claimed in claim 20 wherein said water softener container has an indicator to indicate the absence of salt.

27. (Withdrawn) A water softener as claimed in claim 26 wherein said indicator comprises a light and a light pipe.

28. (Withdrawn) A water softener as claimed in claim 27 wherein said light pipe extends between said brine container and a point of visibility said light is located in the bottom of said brine container in alignment with the bottom of said light pipe, wherein rays from said light pass through said light pipe when solid salt is absent from the space between the light and the end of the light pipe.

29. (Withdrawn) A water softener as claimed in claim 26 wherein said indicator comprises an indicator light energised when the absence of solid salt has been detected using a light and light sensor located in said brine container.

30. (Withdrawn) A water softener as claimed in claim 29 wherein energising of said indicator light is controlled by said programmed controller.

31. (Withdrawn) A water softener as claimed in claim 29 wherein said light source and said light sensor are located in a spaced apart relationship at the bottom of said brine container, to define an optical path there between, a controller receiving as an input the output signal of said light sensor and said indicator light being energised by said controller upon receiving a signal from said light sensor when the optical path between said light source and said light sensor is substantially transmissive.

32. (Withdrawn) A water softener as claimed in claim 30 wherein said controller can delay energising said indicator light for a delay period after absence of solid salt is detected.

33-42. (Canceled)

43. (New) A washing appliance comprising;

a wash chamber,

a resin container configured to receive resins suitable for softening water, the resin container having an outlet connected to the wash chamber for the supply of softened water,

a brine container configured to receive salts suitable for the regeneration of water softening resins, the brine container having an outlet for the supply of brine to the resin container,

a flow directing arrangement configured to receive supply water from a water supply and distribute the supply water within the appliance, the flow directing arrangement configured to direct water to the resin container and the wash chamber,

a control system configured to control the flow directing arrangement and the introduction of brine into the resin container to achieve a desired water softness within the wash chamber, the control system controlling the introduction of brine into the resin container to regulate the regeneration of the resins in accordance with the supply water hardness and the flow directing arrangement to regulate blending of supply water and softened water in accordance with wash cycle requires.

44. (New) A washing appliance as claimed in claim 43 wherein a pump is connected to the brine container outlet and the resin container, the pump being controlled by the controller to pump brine through the resin container to regenerate the resins in accordance with the supply water hardness.

45. (New) A washing appliance as claimed in claim 43 wherein the flow directing arrangement is a two-way solenoid valve.